

# A NEW HYBRID OF *SPIRAEA* (ROSACEAE) FROM OREGON

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## ABSTRACT

A new naturally occurring hybrid between *Spiraea douglasii* var. *menziesii* and *S. splendens* var. *rosea* is described and named *S. ×hitchcockii* W. Hess & N. Stoyloff. Morphological, chromosome number, and pollen stainability evidence is presented. The hybrid is the first reported triploid for the genus *Spiraea*.

## RESUMEN

Se describe un nuevo híbrido natural entre *Spiraea douglasii* var. *menziesii* y *S. splendens* var. *rosea* que se nombra *S. ×hitchcockii* W. Hess & N. Stoyloff. Se presentan evidencias morfológicas, número cromosómico y tinción del polen. El híbrido es el primer triploide citado del género *Spiraea*.

In the Pacific Northwest, areas where species of *Spiraea* overlap, hybrids have been produced (Hitchcock et al. 1961). Hess (1969) presented evidence that *S. douglasii* Hook. var. *menziesii* (Hook.) K. Presl and *S. betulifolia* Pallas var. *lucida* (Greene) C.L. Hitchc. hybridized to produce *S. ×pyramidata* Greene. In at least one area, *S. douglasii* var. *menziesii* and *S. splendens* (Baumann) ex K. Koch var. *rosea* (Gray) Kartesz and Gandhi (syn. *S. densiflora* Nutt.) occur together and produce a naturally occurring hybrid herein named *Spiraea ×hitchcockii*.

***Spiraea ×hitchcockii* W. Hess & N. Stoyloff** (*S. douglasii* var. *menziesii* × *S. splendens* var. *rosea*), hybrida nov. TYPE: U.S.A. OREGON: LANE CO.: Scott Lake, Willamette National Forest, 20 mi W of Three Sisters, on St. Hwy. 242; mixed coniferous forest with *Abies*, *Pinus monticola*, *Tsuga*, *Juniperus*, *Salix*, *Cassiope*, & *Vaccinium*; common shrub, scattered around lake, 10–12 dm tall, infl. pyramidal, petals rose-pink, Elev. 4700', 11 Aug 1995, Hess & Stoyloff 7283 (HOLOTYPE: MOR; ISOTYPES: BRIT, MO, NA, NY, US).

Differt a *Spiraea splendens* var. *rosea* inflorescentia paniculata, pubescentia puberula et *Spiraea douglasii* var. *menziesii* lamina serrulata, calyces lobis puberula, et inflorescentia 1.3–2.8 longiora quam lata.

*Shrubs*, forming rhizomatous colonies, 10–12 dm tall. *Branches* pale brown, becoming dark brown when mature and slightly peeling, lightly puberulent. *Leaves* (20–)25–45(–60) mm long, (8–)12–18(–21) mm wide; mostly obovate to narrowly elliptic; lightly puberulent above, puberulent below; margins serrate, distal 1/2–1/3. *Inflorescences* pyramidal, 18–75(–95) mm long, 15–40(–45) mm wide; puberulent. *Flowers* many, in panicles; hypanthia green, 9–11 mm long, 14–16 mm wide, puberulent within and without; calyx lobes deltoid, 7–10 mm long, 7–9 mm wide, mostly reflexed, puberulent without, densely puberulent along margins within; petals rose-pink, broadly elliptic, 13–15 mm long, 11–13 mm wide; stamens many, pink; carpels 5, separate, follicles glabrous.  $n=27$ .

Additional specimen examined: U.S.A. OREGON. Lane Co.: 21 mi W of Three Sisters off St. Hwy. 242 to Scott Lake, approx. 7 mi W of McKenzie Pass, 22 Aug 1975. W. Hess 3628 (MOR).

*Distribution*.—Scott Lake, in Oregon, is the main locality known to the authors where *Spiraea*  $\times$  *hitchockii* occurs. It grows around the lake margin with its putative parents, *S. douglasii* var. *menziesii* and *S. splendens* var. *rosea*. The putative parents occur elsewhere in the Pacific Northwest and other hybrids of these species may be found in localities of overlap. Hess (1962) cited a collection from Pierce Co., WA (Warren 1627, WTU) as a possible hybrid between the putative parents.

*Morphology*.—The most obvious morphological difference between *Spiraea*  $\times$  *hitchockii* and its putative parents is a pyramidal inflorescence that is up to three times as tall as wide, versus the inflorescence of *S. douglasii* var. *menziesii* that is typically more than three times taller than wide and of *S. splendens* var. *rosea*, which has a flat-topped or slightly rounded inflorescence. The inflorescences and calyces of *S.*  $\times$  *hitchockii* are somewhat puberulent and not tomentulose as those of *S. douglasii* var. *menziesii*, or glabrous to lightly puberulent as that of *S. splendens* var. *rosea*. The leaves of *S.*  $\times$  *hitchockii* are mostly obovate to narrowly elliptical, 2.5–4.5 cm long, 1.2–1.8 cm wide, finely serrulate, and finely puberulent; those of *S. douglasii* var. *menziesii* oblong-elliptic to obovate-lanceolate, 3–10 cm long, 2–8 cm wide, serrate, and glabrous to lightly pubescent; and leaves ovate-oval to oblong-elliptic, 2–5 cm long, 1–4 cm wide, serrulate to serrate, and finely puberulent for *S. splendens* var. *rosea*. The intermediate shape of the inflorescence of *S.*  $\times$  *hitchockii*, when compared with the putative parents, suggest a hybrid. *Spiraea*  $\times$  *hitchockii* shares the leaf vestiture, length, serrulate margins with those of *S. splendens* var. *rosea* and its leaf shape approaches that of *S. douglasii* var. *menziesii*. The shared features of the putative parents suggest the hybrid nature of *S.*  $\times$  *hitchockii*.

*Cytology*.—Hess (1969) reported the chromosome numbers for *Spiraea douglasii* var. *menziesii* as  $n=18$  and *S. densiflora* (= *S. splendens* var. *rosea*) as  $n=9$ . Until

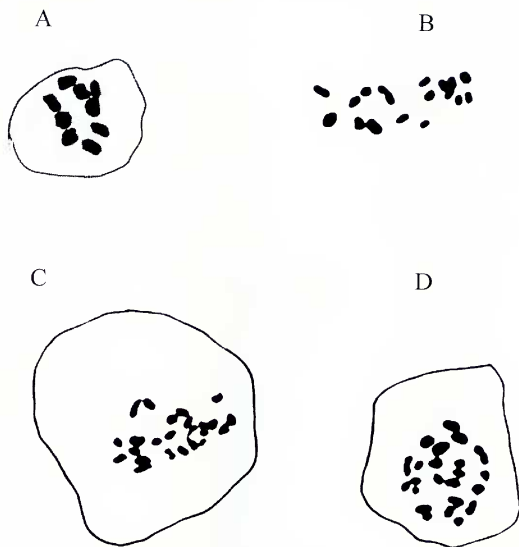


FIG. 1. Camera lucida drawings of chromosomes from microsporocytes of *Spiraea* ( $\times 1000$ ). A. *Spiraea splendens* var. *rosea*, Hess & Stoyhoff 7266; Metaphase I,  $9_{II}$ . B. *Spiraea douglasii* var. *menziesii*, Hess & Stoyhoff 7281; Metaphase I,  $18_{II}$ . C., D. *Spiraea*  $\times$  *hitchcockii*, Hess & Stoyhoff 7283. C. Metaphase I,  $4_{II}, 17_I$ . D. Metaphase I,  $4_{II}, 17_I$ .

then, all of the chromosome counts of *Spiraea* in the new world were tetraploids. The count for *S. splendens* var. *rosea* was the first record of a diploid *Spiraea* in the new world. The collecting of flower buds, their preservation, and slide preparation procedures followed Hess (1969). All counts were made on a Zeiss Photomicroscope II with a camera lucida attachment. Chromosome counts were made from microsporocytes of *S. splendens* var. *rosea*, *S. douglasii* var. *menziesii*, and *S. \times hitchcockii*. Counts of  $n=9$  for *S. splendens* var. *rosea* confirmed the earlier diploid record (Fig. 1, A). The tetraploid number of 18 bivalents obtained for *S. douglasii* var. *menziesii* (Fig. 1, B) also

confirmed an earlier count of Hess (1969). Camera lucida illustrations of chromosomes are shown for *S. ×hitchcockii* (Fig. 1, C, D). The chromosomes for the hybrid had mostly univalents evident and a few bivalents. The haploid number is  $n=27$ . *Spiraea ×hitchcockii* would appear to be the first known triploid for the genus.

*Pollen stainability*.—Pollen grains were immersed in cotton blue-lactolphenol to test for pollen stainability (interpreted as pollen viability) based on procedures in Hess (1969). The percentage of pollen grains of *Spiraea douglasii* var. *menziesii* stained was 84–95%, similar to Hess's report for the same species in 1969. 84–98% of the pollen grains of *S. splendens* var. *rosea* were stained, similar to what Hess reported for the same species in his thesis (1962). *Spiraea ×hitchcockii* pollen grains stained from 2–14%. Low pollen stainability (i.e. viability) is suggestive of hybridity.

*Etymology*.—*Spiraea ×hitchcockii* is named in honor of the senior author's first mentor in taxonomy, C. Leo Hitchcock, one of the best taxonomy teachers of his era, a student par excellence on the flora of the Pacific Northwest, and a world class taxonomist.

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